

5 WHAT IS CLAIMED IS:

1. A non-azeotropic refrigerant mixture, comprising a carbon dioxide and at least one kind of combustible refrigerants, and having a temperature glide.

2. The non-azeotropic refrigerant mixture of claim 1, wherein the combustible refrigerants are hydrocarbons.

10 3. The non-azeotropic refrigerant mixture of claim 1, wherein the combustible refrigerants are combustible HFC refrigerants, and having a temperature glide.

4. A refrigerating cycle, in which a compressor, a heat radiator, an expansion mechanism and an evaporator are connected by a refrigerant path, characterized in that the non-azeotropic refrigerant mixture of claim 1 is circulated in the refrigerating cycle.

15 5. A refrigerating cycle, in which a compressor, a heat radiator, an expansion mechanism and an evaporator are connected by a refrigerant path, characterized in that the non-azeotropic refrigerant mixture of claim 1 is circulated in the refrigerating cycle, and the non-azeotropic refrigerant mixture is subjected to a hyper critical state at a high pressure side of the evaporator.

20 6. A refrigerating cycle, in which a compressor, a heat radiator, an expansion mechanism and an evaporator are connected by a refrigerant path, characterized in that the non-azeotropic refrigerant mixture of claim 1 is circulated in the refrigerating cycle, the non-azeotropic refrigerant mixture is subjected to a hyper critical state at a high pressure side of the evaporator, and the evaporator is operated at a triple point
25 temperature, -56.6°C, of the carbon dioxide.

7. A refrigerating device, comprising:
the refrigerating cycle of any one of claims 4-6; and
a plurality of evaporators, wherein a low temperature evaporator and a high

5 temperature evaporator that can be operated at a high temperature higher than that of the
low temperature evaporator are arranged in series.

8. The refrigerating device of claim 7, wherein an auxiliary heat exchanger for
performing a heat exchange is arranged between a refrigerant path at the heat radiator
side that is formed between an outlet side of the heat radiator and an inlet side of the
10 expansion mechanism, and a refrigerant path at the evaporator side that is formed
between an outlet side of the evaporator and an inlet side of the compressor.